

1 What is claimed is:

2 1. An apparatus for sealing a vacuum chamber comprising:

3 a plurality of long stroke cylinders with a plurality of first piston rods for moving a
4 frame elevator;

5 a frame elevator mounting the first piston rods, guide stems and at least a short stroke
6 cylinder, wherein another end of each first piston rod is enclosed by the long stroke
7 cylinders for linearly moving the frame elevator along a fixed direction, there is a
8 support frame connected at the other ends of the guide stems, each short stroke
9 cylinder enclosed one end of a second piston rod, the second piston rod is parallel to
10 the guide stems and the first piston rods for moving along a parallel direction of the
11 guide stems, each second piston rod connects through at least a lever , at least a
12 transmitting rod and a connecting rod connected, the lever has a support axis close to
13 the transmitting rod, the support axis is pivoted on the support frame, one end of each
14 lever is pivoted with the second piston rod and the other end of the lever is pivoted
15 with the transmitting rod, each transmitting rod is pivoted with the middle of the
16 connecting rod, the two ends of each connecting rods pivoted with at least a
17 direction-changing mechanism respectively; and

18 a door pivoting with the direction-changing mechanisms;

19 when the long stroke cylinders moving the frame elevator to the predetermined
20 position, the short stroke cylinder through the second piston rods, transmitting rods,
21 levers and connecting rods moves the direction-changing mechanisms to make the
22 door linearly move to the vacuum chamber for sealing the vacuum chamber.

23 2. An apparatus for sealing a vacuum chamber in accordance with claim 1, wherein each
24 direction-changing mechanism comprises a sliding block, a support block and a
25 mounting block, the mounting blocks are mounted on the door, the first ends of the
26 sliding blocks are pivoted with the connecting rods by pivot axes, each pivot axis of
27 the sliding block moves in the corresponding narrow opening on the support frame,

- 1 the second ends of the sliding blocks are pivoted with the mounting blocks mounted
2 on the door, the middles of the slide blocks are pivoted with the support blocks, and
3 the other ends of the support blocks are pivoted with the support frame.
- 4 3. An apparatus for sealing a vacuum chamber in accordance with claim 1, wherein the
5 support frame includes a fixed across bar for pivoting with the support axis of the
6 lever.
- 7 4. An apparatus for sealing a vacuum chamber in accordance with claim 1, further
8 comprising a ring cushion on the door.
- 9 5. An apparatus for sealing a vacuum chamber in accordance with claim 1, further
10 comprising a push rod and two second transmitting rods pivoted with the two ends of
11 the push rod between the second piston rod and the levers, wherein the middle of the
12 push rod is pivoted with the second piston rod, and the second transmitting rods are
13 pivoted with the ends of the levers.
- 14 6. An apparatus for sealing a vacuum chamber comprising:
15 a flat shell having an opening;
16 a door fitted in the shell, the door mounting a plurality of direction-changing
17 mechanisms;
18 a sealing mechanism including a frame elevator, a support frame and guide stems for
19 fixedly connecting with the frame elevator and the support frame, wherein at least a
20 short stroke cylinder having a second piston rod is fitted on the frame elevator for
21 moving the second piston rod to the predetermined point, the second piston rod drives
22 at least a lever, a transmitting rod and a connecting rod, the support axis of the lever is
23 pivoted on the support frame, the transmitting rod connects with the lever and the
24 middle of the connecting rod, the two ends of the connecting rod are pivoted with the
25 direction-changing mechanisms respectively for moving the door to the opening of
26 the shell; and
27 an elevating mechanism including a plurality of long stroke cylinders with first piston

- 1 rods, wherein the first piston rods connect the frame elevator, the long stroke
2 cylinders drive the first piston rods to the predetermined points for vertically moving
3 the door and the sealing mechanism, and the first piston rods are parallel to the
4 second piston rod.
- 5 7. An apparatus for sealing a vacuum chamber in accordance with claim 6, wherein the
6 shell has a guide plate for passing through the guide stems and the second piston rod.
- 7 8. An apparatus for sealing a vacuum chamber in accordance with claim 6, wherein each
8 direction-changing mechanism includes a sliding block, a support block and a
9 mounting block, wherein the mounting block is mounted on the door, the first end of
10 the sliding block is pivoted with the connecting rod, the second end of the sliding
11 block is pivoted with the mounting block, the middle of the slide block is pivoted
12 with the support block, and the other end of the support block is pivoted with the
13 support frame.
- 14 9. An apparatus for sealing a vacuum chamber in accordance with claim 8, wherein the
15 support frame has a plurality of narrow openings for offering the moving spaces of
16 pivot axes at the first ends of the sliding blocks.
- 17 10. An apparatus for sealing a vacuum chamber in accordance with claim 6, wherein the
18 support frame includes a fixed across bar for pivoting the lever.
- 19 11. An apparatus for sealing a vacuum chamber in accordance with claim 6, wherein a
20 ring cushion is fitted on the door.
- 21 12. An apparatus for sealing a vacuum chamber in accordance with claim 6, further
22 comprising a push rod and two second transmitting rods pivoting the two ends of the
23 push rod between the second piston rod and the levers, wherein the middle of the
24 push rod is pivoted with the second piston rod and the second transmitting rods are
25 pivoted with the ends of the levers.
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